

### IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method for operating an implantable medical device, comprising:

sensing electrical activity in a cardiac chamber and generating a chamber sense signal when the sensed electrical activity exceeds a predetermined threshold;

measuring time intervals between each pair of successive chamber senses, referred to as BB intervals, the measured BB intervals constituting a BB time series;

~~filtering the BB intervals to exclude those BB intervals which are greater or less than a statistic computed from a plurality of preceding BB intervals by a specified threshold value, the excluded BB intervals being deemed to be ectopic BB intervals which are due to ectopic cardiac activity;~~

~~updating the plurality of preceding BB intervals used to compute the statistic with a most recent BB interval unless that interval is deemed ectopic; and,~~

filtering the BB intervals to exclude particular BB intervals as ectopic using a first-in-first-out buffer for storing a plurality of previous BB intervals and from which a statistic is computed, where the buffer can contain a maximum number N of such preceding BB intervals,  
by:

1) acquiring a present BB interval,

2) if the buffer contains less than N intervals, classifying the present BB interval as indeterminate, updating the buffer with the indeterminately classified BB interval, and returning to step 1,

3) if the buffer contains N intervals, comparing the present BB interval to the computed statistic,

4) excluding the present BB interval as an ectopic interval if the present BB interval is greater or less than the computed statistic by the specified threshold value, removing the oldest BB interval from the buffer, and returning to step 1,

5) updating the buffer by removing the oldest BB interval and storing the present BB interval therein if the present BB interval is not excluded as ectopic and then returning to step 1;  
and,

computing heart rate variability metrics from the filtered BB intervals that are reflective of a higher and a lower frequency component of the filtered BB intervals.

2. (Original) The method of claim 1 wherein the statistic is a median value of the plurality of preceding BB intervals.

3. (Original) The method of claim 1 wherein the statistic is a weighted average of the plurality of preceding BB intervals.

4. (Original) The method of claim 1 wherein the chamber senses are ventricular senses and the BB intervals are RR intervals.

5. (Original) The method of claim 1 wherein the specified threshold value is a specified number.

6. (Original) The method of claim 1 wherein the specified threshold value is a specified percentage of the computed statistic.

7 – 8. (Cancelled)

9. (Currently Amended) The method of claim 1 further comprising filtering the BB intervals by:

~~excluding the present BB interval as ectopic if the present BB interval is above or below specified upper and lower limit values;~~

~~excluding the present BB interval as indeterminate if a first-in-first-out buffer for containing a maximum number N of preceding BB intervals contains less than N intervals;~~

~~if the buffer contains N intervals, computing a median value of the plurality of previous BB intervals stored in the buffer;~~

~~excluding the present BB interval as ectopic if the present BB interval is greater or less than the computed median value by the specified threshold value; and,~~

~~updating the buffer after each BB interval is evaluated by:~~  
~~if the present BB interval was not ectopic, removing the oldest interval from the buffer if~~  
~~the buffer contains N intervals and storing the present BB interval therein; and,~~  
~~if the present BB interval was ectopic, removing the oldest interval from the buffer if the~~  
~~buffer contains at least one interval~~  
if the present BB interval is above or below specified upper and lower limit values,  
excluding the present BB interval as ectopic and removing the oldest BB interval from the  
buffer.

10. (Original) The method of claim 9 wherein the number N is three.

11. (Original) The method of claim 1 wherein the heart rate variability metric is a parameter computed by time-domain filtering of the filtered BB intervals.

12. (Original) The method of claim 1 wherein the heart rate variability metric is a parameter computed by frequency domain analysis of the filtered BB intervals.

13. (Original) The method of claim 1 wherein the heart rate variability metric is a statistical surrogate of a frequency component of the filtered BB intervals.

14. (Original) The method of claim 1 further comprising maintaining a count of the number of detected ectopic beats.

15. (Currently Amended) A cardiac rhythm management device, comprising:  
a sensing channel for sensing electrical activity in a cardiac chamber;  
a controller interfaced to the sensing channel which detects a chamber sense when the sensed electrical activity exceeds a predetermined threshold;  
wherein the controller is programmed with executable instructions for:  
measuring time intervals between each pair of successive chamber senses, referred to as BB intervals, the measured BB intervals constituting a BB time series;

~~filtering the BB intervals to exclude those BB intervals which are greater or less than a statistic computed from a plurality of preceding BB intervals by a specified threshold value, the excluded BB intervals being deemed to be ectopic BB intervals which are due to ectopic cardiac activity;~~

~~updating the plurality of preceding BB intervals used to compute the statistic with a most recent BB interval unless that interval is deemed ectopic; and,~~

filtering the BB intervals to exclude particular BB intervals as ectopic using a first-in-first-out buffer for storing a plurality of previous BB intervals and from which a statistic is computed, where the buffer can contain a maximum number N of such preceding BB intervals, by:

1) acquiring a present BB interval,

2) if the buffer contains less than N intervals, classifying the present BB interval as indeterminate, updating the buffer with the indeterminately classified BB interval, and returning to step 1,

3) if the buffer contains N intervals, comparing the present BB interval to the computed statistic,

4) excluding the present BB interval as an ectopic interval if the present BB interval is greater or less than the computed statistic by the specified threshold value, removing the oldest BB interval from the buffer, and returning to step 1,

5) updating the buffer by removing the oldest BB interval and storing the present BB interval therein if the present BB interval is not excluded as ectopic and then returning to step 1; and,

computing heart rate variability metrics from the filtered BB intervals that are reflective of a higher and a lower frequency component of the filtered BB intervals.

16. (Original) The device of claim 15 wherein the statistic is a median value of the plurality of preceding BB intervals.

17. (Original) The device of claim 15 wherein the statistic is a weighted average of the plurality of preceding BB intervals.

18. (Original) The device of claim 15 wherein the chamber senses are ventricular senses and the BB intervals are RR intervals.

19. (Original) The device of claim 15 wherein the specified threshold value is a specified number.

20. (Original) The device of claim 15 wherein the specified threshold value is a specified percentage of the computed statistic.

21 – 22. (Cancelled)

23. (Currently Amended) The device of claim 15 wherein the controller is programmed to filter the BB intervals by:

~~excluding the present BB interval as ectopic if the present BB interval is above or below specified upper and lower limit values;~~

~~excluding the present BB interval as indeterminate if a first in first out buffer for containing a maximum number N of preceding BB intervals contains less than N intervals;~~

~~if the buffer contains N intervals, computing a median value of the plurality of previous BB intervals stored in the buffer;~~

~~excluding the present BB interval as ectopic if the present BB interval is greater or less than the computed median value by the specified threshold value; and,~~

~~updating the buffer after each BB interval is evaluated by:~~

~~if the present BB interval was not ectopic, removing the oldest interval from the buffer if the buffer contains N intervals and storing the present BB interval therein; and,~~

~~if the present BB interval was ectopic, removing the oldest interval from the buffer if the buffer contains at least one interval~~

if the present BB interval is above or below specified upper and lower limit values,  
excluding the present BB interval as ectopic and removing the oldest BB interval from the  
buffer.

24. (Original) The device of claim 23 wherein the number N is three.

25. (Original) The device of claim 15 wherein the heart rate variability metric is a parameter computed by time-domain filtering of the filtered BB intervals.

26. (Original) The device of claim 15 wherein the heart rate variability metric is a parameter computed by frequency domain analysis of the filtered BB intervals.

27. (Original) The device of claim 15 wherein the heart rate variability metric is a statistical surrogate of a frequency component of the filtered BB intervals.

28. (Original) The device of claim 15 wherein the controller is programmed to maintain a count of the number of detected ectopic beats.